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Department of Environmental Quality  
State Air Program

ORIGINAL

February 5, 2008

Dan Pitman  
Idaho Department of Environmental Quality  
Air Pollution Control Division  
1410 N. Hilton  
Boise, ID 83706

Subject: Pacific Ethanol Magic Valley, LLC  
Burley, Idaho

Dear Mr. Pitman;

Natural Resource Group, LLC (NRG), on behalf of Pacific Ethanol, Inc., proposes to amend the Authority to Construct permit for Pacific Ethanol Magic Valley, LLC (Facility), permit number P-060450. The following summarizes the proposed changes supported by the attachments.

Regenerative Catalytic Oxidizer

The Facility requests to amend the control equipment for stack SV12. The Facility proposes to install a Regenerative Catalytic Oxidizer (RCO) in place of the currently permitted Regenerative Thermal Oxidizer (RTO).

Distillation Scrubber Stack

The distillation scrubber (CE08) will no longer be routed to the RCO, but will vent to atmosphere from stack SV13. As a result of this change, the potential VOC emissions from stack SV12 will decrease from 23.27 tons per year to 22.19 tons per year, and stack SV13 is proposed to be permitted at 3.14 tons per year of VOCs. This submittal also provides hazardous air pollutant emission rates from SV13. Due to the stack and emission alterations, a revised air quality modeling analysis has been completed and is included as Attachment A to this submittal. The Facility proposes to revise the language pertaining to the distillation scrubber to reflect an operating flow rate of 15 gallons per minute (gpm).

Fermentation Scrubber Language

The Facility proposes to revise the language pertaining to the fermentation scrubber to reflect an operating flow rate of 30 gpm

Grain Shipping

The Facility proposes to permit the ability to load out corn for resale. The Facility proposes an increase of 1,500 tons of grain per day to ship as wholesale grain, of which 750 tons per day would be ground prior to load out. The particulate emissions resulting from the additional grain throughput will be controlled by the existing Receiving Baghouse (CE01) and the Handling Baghouse (CE02). Fugitive emissions from the loadout and grinding processes (FS06 and FS07), and increased truck dust emissions (FS01) have been accounted for in the revised emission calculations and modeling analysis.

Equipment List Revisions

The Facility proposes to increase the number of centrifuges in the fermentation process from two to five centrifuges. The three additional centrifuges are listed as EU41-EU43 on the emission

summary page of the emission calculations. In addition, two chemical storage tanks, the sulfuric acid storage tank (TK07) and the ammonia tank (TK08), have been added to the emissions calculations summary page.

#### Storage Tanks

The Facility proposes to amend the capacities of the storage tanks located at the facility. The storage capacities of the tanks have changed due to an adjustment in shell height of the tanks. The diameters of the tanks remain unchanged. Table 1 describes the tanks and the proposed changes in capacities.

**Table 1: Summary of Changes to the Storage Tanks**

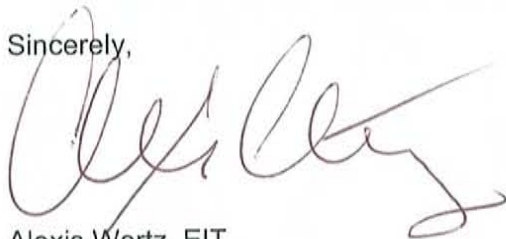
<b>Tank Identification</b>	<b>Contents</b>	<b>Existing Capacity (gallons)</b>	<b>New Capacity (gallons)</b>
TK01	Off-Spec 190 Proof Ethanol	116,800	174,500
TK02	Denaturant	74,300	58,750
TK03	200 Proof Ethanol Tank #1	116,800	174,500
TK04	200 Proof Ethanol Tank #2	116,800	174,500
TK05	Denatured Ethanol Tank #1	500,000	587,000
TK06	Denatured Ethanol Tank #2	500,000	587,000

All tanks are subject to the standards of NSPS Subpart Kb; therefore, all six tanks will be equipped with floating roofs to comply with this Subpart. Since the diameters remain the same, the emissions from the tanks will not change from the original permitted limits based on TANKs emission data.

The revised emission calculations are included as Attachment B. The applicable Idaho Department of Environmental Quality forms can be found in Attachment C. The revised TANKS 4.09 calculations are included as Attachment D.

If you have any questions or comments, please feel free to contact Cheryl Pagard at (916) 403-2129 or Bill VonSee of Natural Resource Group, LLC at (612) 339-2478.

Sincerely,



Alexis Wertz, EIT  
Air Quality Engineer  
(720)956-5306

Enclosures: As noted

**Attachment A**  
**Revised Modeling Analysis Report**



## Idaho DEQ Air Dispersion Modeling Checklist

As a requirement of the air permitting process, an air dispersion modeling analysis (screening and/or refined) must be conducted. Air dispersion models are used to predict the potential impact a source may have on the air shed in which it is located. This checklist will aid in collecting all of the necessary information to perform a complete modeling analysis. The EPA's *Guideline on Air Quality Models* (EPA 2001) and this guideline should be used as a reference to ensure that the modeling techniques used will meet federal and state requirements. Please include sufficient computer disk copies of the DOS versions of input and output files so DEQ can reproduce model runs. DEQ must be able to rerun the input files on the DOS versions of the models. Copies of the meteorological data files used and all building information must also be included. A scaled plot plan showing the location of all structures and emission points needs to be submitted as part of the permitting application. It is strongly recommended that the facility contact the DEQ modeling coordinator prior to performing an air quality assessment to negotiate a modeling protocol. Units must be noted where appropriate, both English and metric units are acceptable.

It is important that the **most recent model versions** be utilized in any analysis.

1. Name of Applicant/Company:  
Pacific Ethanol Magic Valley, LLC

Facility Description:

Fuel Grade Ethanol Production

Dispersion Model(s) Used:

ISCST3 (revision to original modeling submission)

2. Source Classification:

Number of Point Sources 18  
(Section 3)

Number of Area Sources 2  
(Section 4)

Number of Volume Sources 3  
(Section 5)

3. Stack/Point Source Parameters (please include for each stack/point source modeled). List the **maximum** emissions rate(s) for each pollutant. NOTE: If the stack is not circular, use equivalent dimensions determined by  $AREA = \pi d^2/4$ , where d is the inner stack diameter. Units must be noted where appropriate, both English and metric units are acceptable. (Note: PM<sub>2.5</sub> refers to particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers) Please see Appendix A, Tables A-1 and A-2 included in the modeling report for stack details

Source \_\_\_\_\_

PM<sub>10</sub> \_\_\_\_\_ PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Stack Height \_\_\_\_\_ Stack Diameter \_\_\_\_\_ Stack Temperature \_\_\_\_\_

Stack Exit Velocity \_\_\_\_\_ and/or Actual Stack Flow Rate \_\_\_\_\_

Stack Orientation (Horizontal or Vertical) \_\_\_\_\_ Rain Cap Present (Y or N) \_\_\_\_\_

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Source \_\_\_\_\_

PM<sub>10</sub> \_\_\_\_\_ PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Stack Height \_\_\_\_\_ Stack Diameter \_\_\_\_\_ Stack Temperature \_\_\_\_\_

Stack Exit Velocity \_\_\_\_\_ and/or Actual Stack Flow Rate \_\_\_\_\_

Stack Orientation (Horizontal or Vertical) \_\_\_\_\_ Rain Cap Present (Y or N) \_\_\_\_\_

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Source \_\_\_\_\_

PM<sub>10</sub> \_\_\_\_\_ PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Stack Height \_\_\_\_\_ Stack Diameter \_\_\_\_\_ Stack Temperature \_\_\_\_\_

Stack Exit Velocity \_\_\_\_\_ and/or Actual Stack Flow Rate \_\_\_\_\_

Stack Orientation (Horizontal or Vertical) \_\_\_\_\_ Rain Cap Present (Y or N) \_\_\_\_\_

4. Area Source Parameters (please include for each area source modeled). List the **maximum** emissions rate(s) for each pollutant. Units must be noted where appropriate, both English and metric units are acceptable.

Source EQUIPFUG

PM<sub>10</sub> \_\_\_\_\_ PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): Benzene - 2.17 g/s

Source Height 0.3 m Easterly Dimension 3.05 m Northerly Dimension 5.0 m

Initial Vertical Dimension 12.19 m Angle from North 0

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Source TANKS

PM<sub>10</sub> \_\_\_\_\_ PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): Benzene - 6.1E-4 g/s

Source Height 0.61 m Easterly Dimension 30.48 m Northerly Dimension 30.48 m

Initial Vertical Dimension 7.62 m Angle from North 0

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Source \_\_\_\_\_

PM<sub>10</sub> \_\_\_\_\_ PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height \_\_\_\_\_ Easterly Dimension \_\_\_\_\_ Northerly Dimension \_\_\_\_\_

Initial Vertical Dimension \_\_\_\_\_ Angle from North \_\_\_\_\_

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Source \_\_\_\_\_

PM<sub>10</sub> \_\_\_\_\_ PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_

Toxic(s) (Please List): \_\_\_\_\_

Source Height \_\_\_\_\_ Easterly Dimension \_\_\_\_\_ Northerly Dimension \_\_\_\_\_

Initial Vertical Dimension \_\_\_\_\_ Angle from North \_\_\_\_\_

5. Volume Source Parameters (please include for each volume source modeled). List the **maximum** emissions rate(s) for each pollutant. Units must be noted where appropriate, both English and metric units are acceptable.

Source Grain1  
PM<sub>10</sub> 0.02 g/s PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_  
Toxic(s) (Please List): \_\_\_\_\_  
Source Height 2.29 m Initial Horizontal Dimension 1.7 m  
Initial Vertical Dimension 2.29 m

Source Grain2  
PM<sub>10</sub> 0.02 g/s PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_  
Toxic(s) (Please List): \_\_\_\_\_  
Source Height 2.29 m Initial Horizontal Dimension 1.7 m  
Initial Vertical Dimension 2.29 m

Source Wetcake  
PM<sub>10</sub> \_\_\_\_\_ PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_  
Toxic(s) (Please List): Formaldehyde - 1.47E-3 g/s, Acetaldehyde - 7.34E-4 g/s  
Source Height 0.3 m Initial Horizontal Dimension 24.38 m  
Initial Vertical Dimension 4.88 m

Source \_\_\_\_\_  
PM<sub>10</sub> \_\_\_\_\_ PM<sub>2.5</sub> \_\_\_\_\_ NO<sub>x</sub> \_\_\_\_\_ SO<sub>2</sub> \_\_\_\_\_ CO \_\_\_\_\_ VOC \_\_\_\_\_  
Toxic(s) (Please List): \_\_\_\_\_  
Source Height \_\_\_\_\_ Initial Horizontal Dimension \_\_\_\_\_  
Initial Vertical Dimension \_\_\_\_\_



6. Structure Parameters: (Applies to any and all structures within the property boundary(ies) as well as nearby structures that may influence the dispersion of pollutants emitted by the source(s)). Units must be noted where appropriate, both English and metric units are acceptable.

Please see Appendix A, Table A-3 included with the modeling report.

Building \_\_\_\_\_

Building Tier No. 1 Height: \_\_\_\_\_ Building Tier No. 1 Length: \_\_\_\_\_ Building Tier No. 1 Width: \_\_\_\_\_

Building Tier No. 2 Height: \_\_\_\_\_ Building Tier No. 2 Length: \_\_\_\_\_ Building Tier No. 2 Width: \_\_\_\_\_

Building Tier No. 3 Height: \_\_\_\_\_ Building Tier No. 3 Length: \_\_\_\_\_ Building Tier No. 3 Width: \_\_\_\_\_

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Building \_\_\_\_\_

Building Tier No. 1 Height: \_\_\_\_\_ Building Tier No. 1 Length: \_\_\_\_\_ Building Tier No. 1 Width: \_\_\_\_\_

Building Tier No. 2 Height: \_\_\_\_\_ Building Tier No. 2 Length: \_\_\_\_\_ Building Tier No. 2 Width: \_\_\_\_\_

Building Tier No. 3 Height: \_\_\_\_\_ Building Tier No. 3 Length: \_\_\_\_\_ Building Tier No. 3 Width: \_\_\_\_\_

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Building \_\_\_\_\_

Building Tier No. 1 Height: \_\_\_\_\_ Building Tier No. 1 Length: \_\_\_\_\_ Building Tier No. 1 Width: \_\_\_\_\_

Building Tier No. 2 Height: \_\_\_\_\_ Building Tier No. 2 Length: \_\_\_\_\_ Building Tier No. 2 Width: \_\_\_\_\_

Building Tier No. 3 Height: \_\_\_\_\_ Building Tier No. 3 Length: \_\_\_\_\_ Building Tier No. 3 Width: \_\_\_\_\_

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Building \_\_\_\_\_

Building Tier No. 1 Height: \_\_\_\_\_ Building Tier No. 1 Length: \_\_\_\_\_ Building Tier No. 1 Width: \_\_\_\_\_

Building Tier No. 2 Height: \_\_\_\_\_ Building Tier No. 2 Length: \_\_\_\_\_ Building Tier No. 2 Width: \_\_\_\_\_

Building Tier No. 3 Height: \_\_\_\_\_ Building Tier No. 3 Length: \_\_\_\_\_ Building Tier No. 3 Width: \_\_\_\_\_

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Tank \_\_\_\_\_ Tank Height \_\_\_\_\_ Tank Diameter \_\_\_\_\_

Tank \_\_\_\_\_ Tank Height \_\_\_\_\_ Tank Diameter \_\_\_\_\_

Tank \_\_\_\_\_ Tank Height \_\_\_\_\_ Tank Diameter \_\_\_\_\_

Tank \_\_\_\_\_ Tank Height \_\_\_\_\_ Tank Diameter \_\_\_\_\_



7. Scaled Plot Plan: (Make sure that all of the buildings and tanks shown on the scaled plot plan are also listed in section 6.) Please see the site layout attached at the end of this document.

Emission Release Locations: \_\_\_\_\_ Buildings: \_\_\_\_\_ Tanks: \_\_\_\_\_  
(On site and neighboring) (On site and neighboring)

Property Boundary(ies): \_\_\_\_\_ Potential Co-contributor(s): \_\_\_\_\_

Sensitive Receptors: \_\_\_\_\_

Note: A sensitive receptor is defined in IDAPA 58.01.01.007.10 as, "any residence, building, or location occupied or frequented by persons who, due to age, infirmity, or health-based criteria, may be more susceptible to the deleterious effects of a toxic air pollutant than the general population including, but not limited to, elementary and secondary schools, day care centers, playgrounds and parks, hospitals, clinics, and nursing homes".

8. Topographic Map Showing: Please see the two topographic maps attached at the end of this document.

Source Location(s) \_\_\_\_\_ Buildings \_\_\_\_\_ Tanks \_\_\_\_\_  
(On site and neighboring) (On site and neighboring)

Property Boundary(ies) \_\_\_\_\_ Model Receptors \_\_\_\_\_

Maximum Impact Locations \_\_\_\_\_

9. Meteorology Used (upper air and surface data): Hayburn, ID

Site-Specific: \_\_\_\_\_

A quality control and quality assurance analysis, consistent with EPA guidelines, should be included for any on-site data used other than that supplied by the NWS. Contact DEQ regarding the adequacy of this data before use.

NWS Data Representative of the Site \_\_\_\_\_

10. Land Use Classification:

Urban \_\_\_\_\_ Rural ☒ (DEQ can be contacted for further guidance on source classification)

Justification:

greater than 50% of the land within  
a 3 km radius of the site is classified  
as suburban or rural.

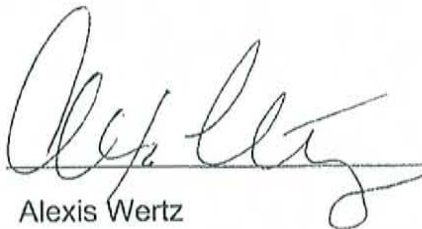
**Completeness Determination Questions:**

- Was a modeling protocol approved by DEQ prior to permit application? Negotiating a modeling protocol with DEQ assures the general modeling approach will be accepted.
- Is a justification given explaining why a particular dispersion model was used?
- Did you document and justify input parameters and model settings? (Please include a written justification.)
- Were grid receptors placed 100 to 500 meters apart for the initial modeling analysis in order to find the area of maximum impact?
- Were grid receptors placed 25 to 50 meters apart in the area of maximum impact?
- What ambient air quality standards apply (e.g., NAAQS, significance standards, acceptable ambient concentration for carcinogens and non-carcinogens (AAC, AAC, respectively), PSD increment standards)?
- Were DEQ-approved background concentrations included in the modeling analysis (attainment and unclassified areas only)?

**Considerations for major pollution sources and sources subject to PSD regulations:**

- Was DEQ contacted regarding the need for (and quality control of) pre-construction monitoring data?
- Was a visibility analysis performed?
- Was the area of significant impact documented?
- Were impacts included (on disk) at all integral UTM coordinates within the significant impact area?
- If a major facility (as defined in IDAPA 58.01.01.006.55), was cumulative increment consumption analyzed?

Signature of modeler (please print and sign name)

  
Alexis Wertz

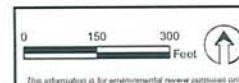
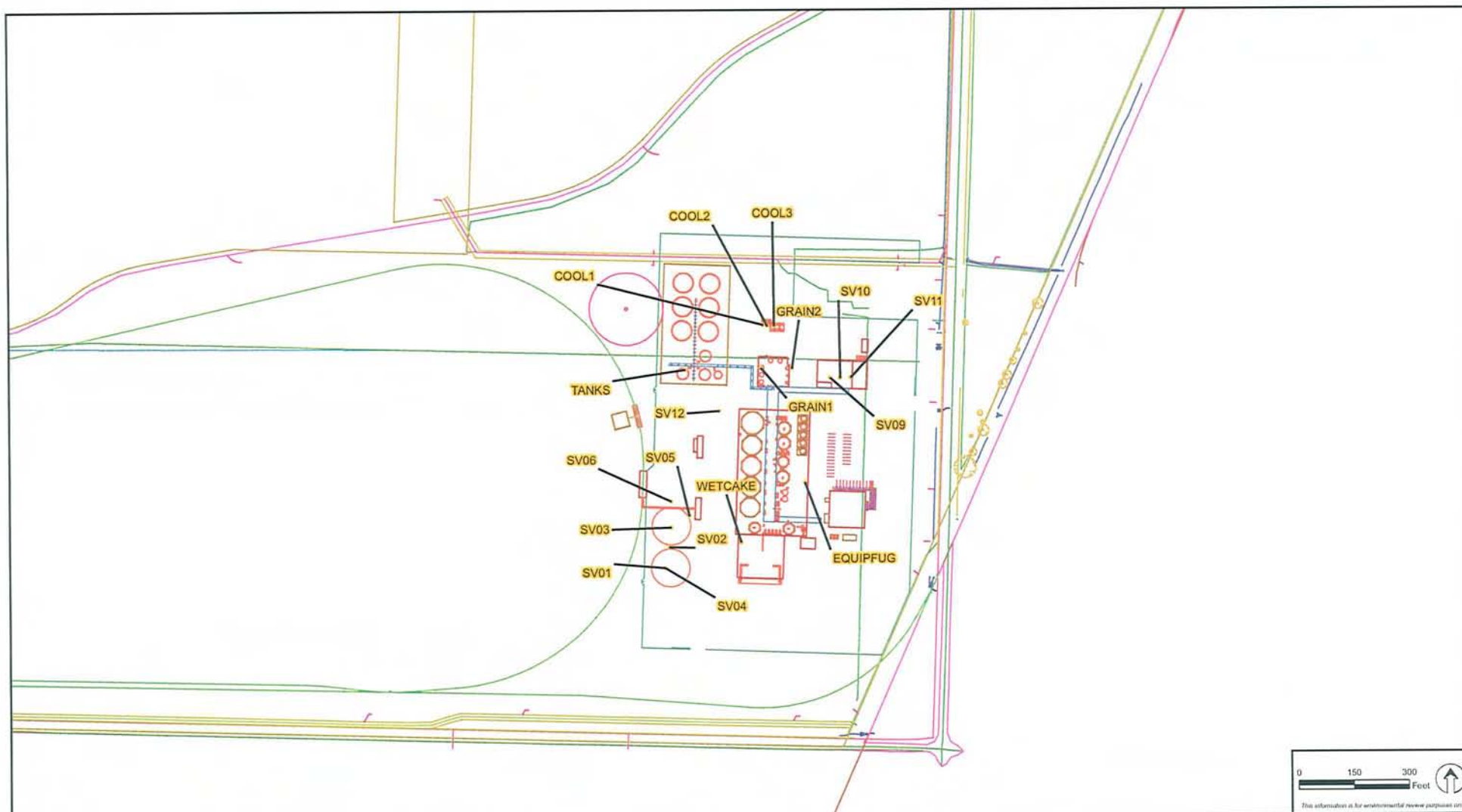
Telephone Number

720-956-5306

Name of DEQ Modeling Contact

Telephone Number

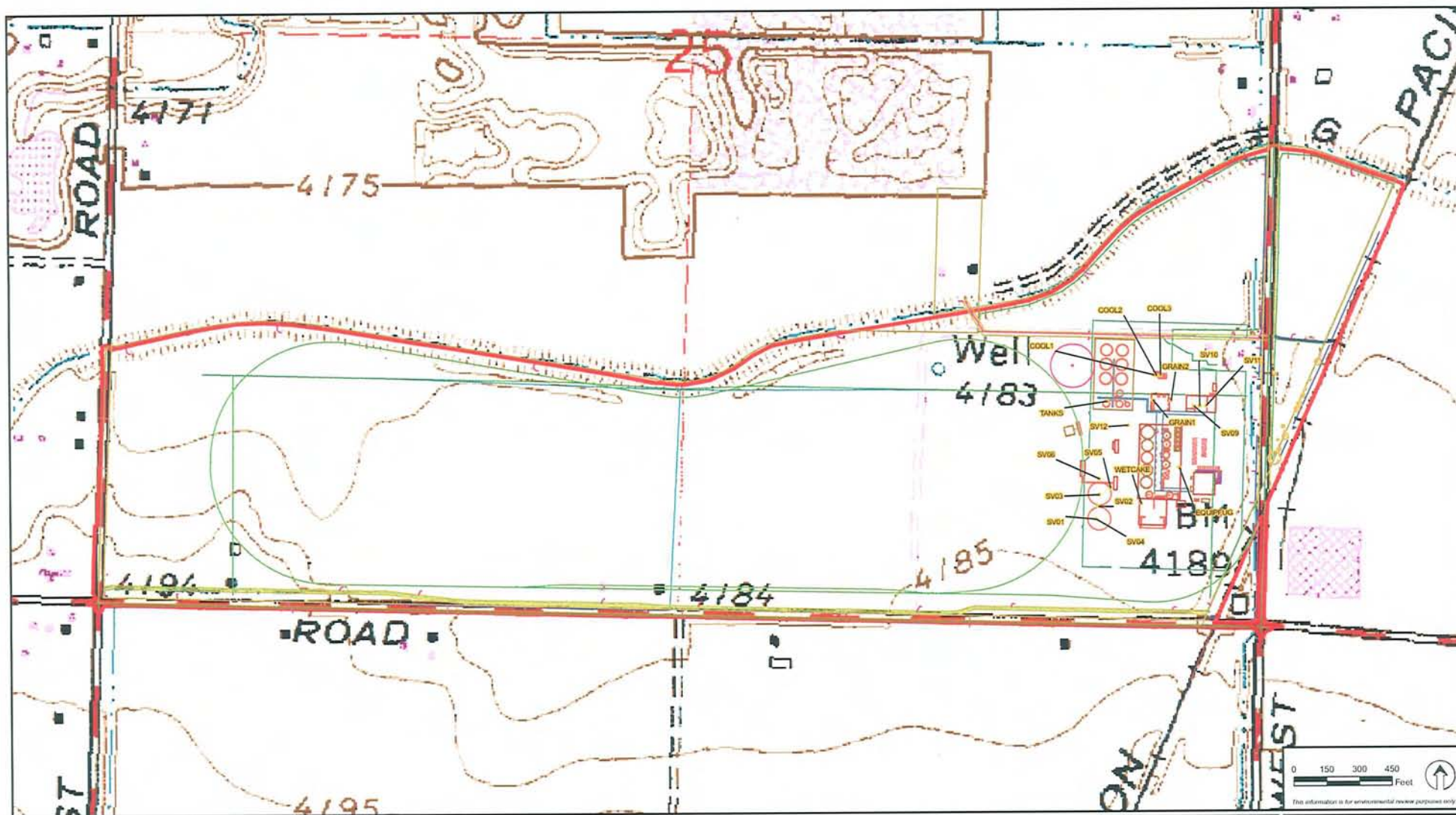
(208) 373-0502



Pacific Ethanol Burley, LLC  
Burley, Idaho

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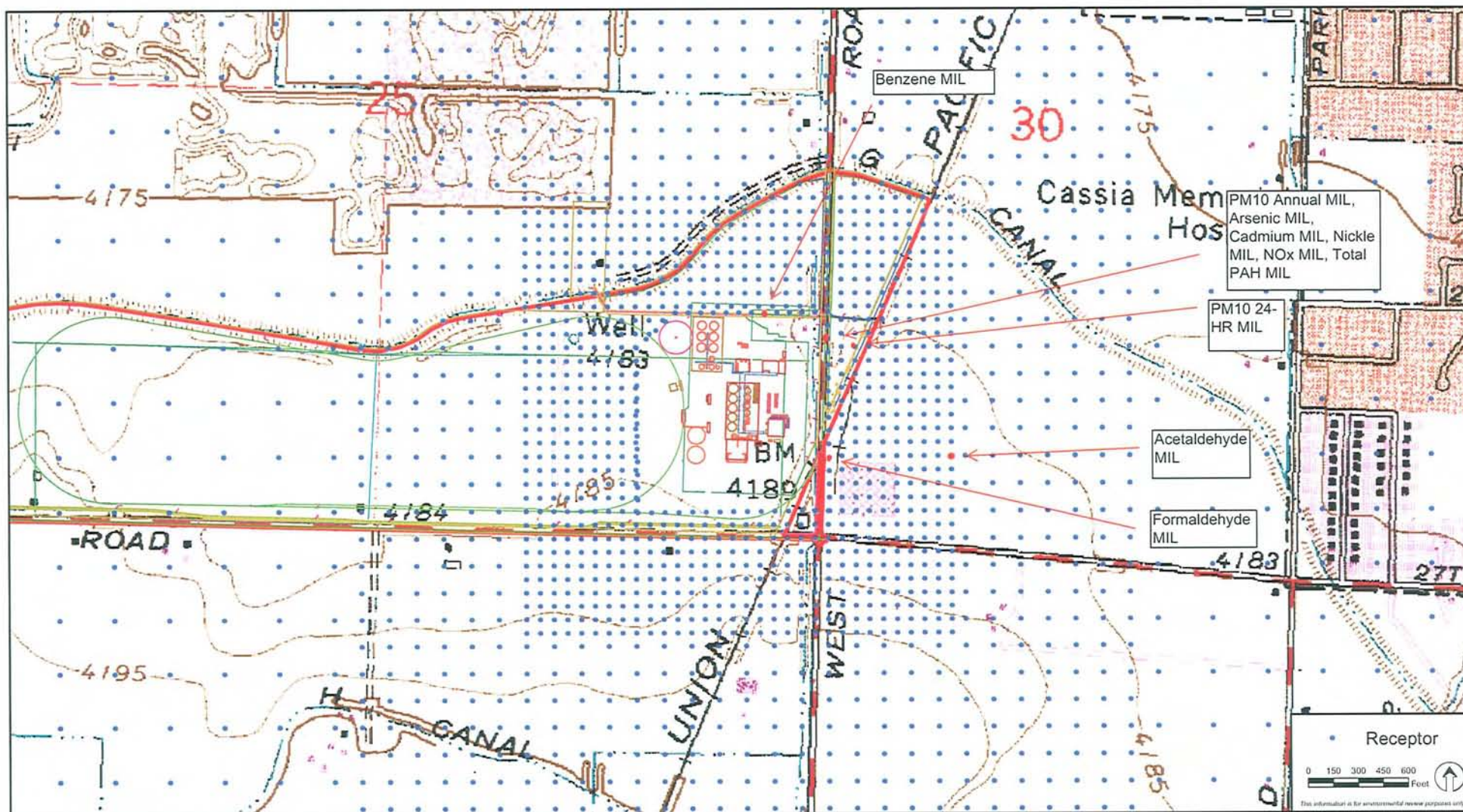


Pacific Ethanol, Inc.

Pacific Ethanol Burley, LLC  
Burley, Idaho

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Pacific Ethanol, Inc.

Pacific Ethanol Burley, LLC  
Burley, Idaho

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